Description of *Trinchesia diversicolor* spec. nov. from the Japan Sea Coast of Middle Japan

(Nudibranchia : Eolidoidea : Cuthonidae)

BY

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(3 Text figures)

THIS PAPER IS CONCERNED with the description of a new molluscan species which was tentatively referred to by Dr. USUKI (1969) as *Trinchesia* sp. from Sado Island, Japan. Prior to Usuki's record, however, specimens of this undetermined species had been collected by Mr. Abe from Abugashima of Toyama Bay, south of Sado Island, and sent to the author for identification. Fortunately in 1967 and 1974 there was a total of a larger collection of specimens made by the Biological Club of the Takaoka Senior High School, and its associates, from Akasumi, situated on the west coast of Noto Peninsula which forms, so to say, the outer wall of Toyama Bay. The author himself also had opportunities to participate in the collecting party there. The main body of the description is based on this latter collection.

Trinchesia diversicolor Baba, spec. nov.

(Japanese name: Goshiki-minoumiushi)

(Figures 1 - 3)

Synonymy:

Trinchesia sp. USUKI, 1969: 7, plt. 3, fig. 35. - Sado Island

Distribution: Japan Sea coast of Middle Japan: Sado Island; Toyama Bay (Abugashima); west coast of Noto Peninsula (Akasumi; Koura); and Oki Island, off Shimane Peninsula.

Type Series: In all, 35 animals from Akasumi (37°03′N; 136°44′E), west coast of Noto Peninsula, shallow water, were used by the author for general study. Out of these, 2 were prepared in serial horizontal sections.

Collector: The Biological Club of the Takaoka Senior High School, and its associates.

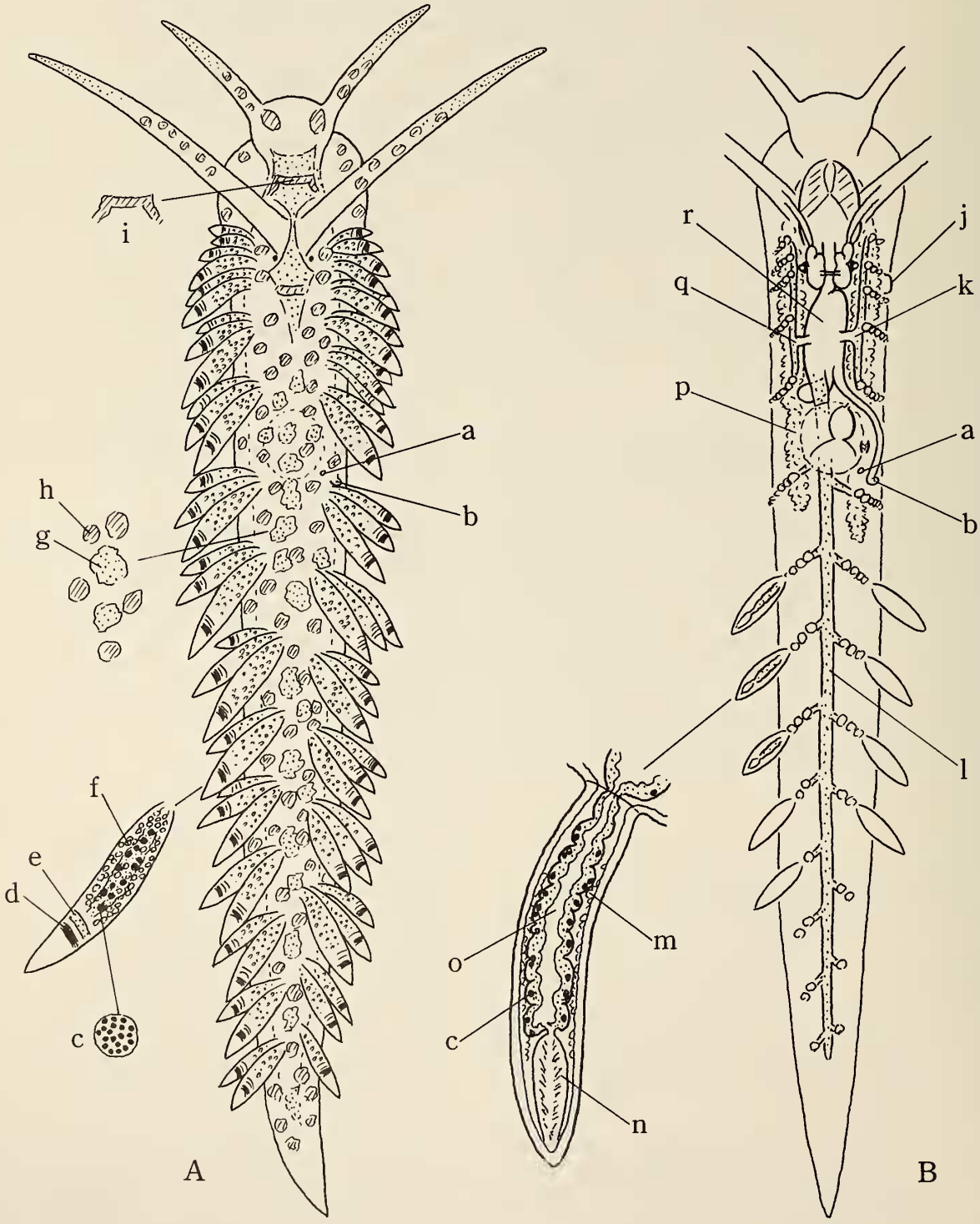
Date of Collection: August 7 and 8, 1967; and August 10 and 11, 1974.

Description:

External Form: Measurements of the largest animal after RISSO-DOMINGUEZ, 1963, are as follows: A 15 mm; Ac 13 mm; Bc 2 mm; Hc 2 mm; T 2 mm; R 4 mm; C 2 mm; and P 2 mm. The smallest specimen observed was 5 mm long. The general form of the body is roughly as usual in the genus. But in this new species it may be emphasized that the rhinophores are considerably longer than the oral tentacles, the tail is short, and the branchial papillae on the back margins are rather closely set in many rows. The rhinophores themselves are simple; the foot-corners are rounded.

In the largest specimens there occur 13 to 14 rows of branchial papillae on either side, of which the foremost 5 rows are to be ascribed to the right liver (and the left partner) and the rest to the left posterior liver. Each papilla is long fusiform when extended; on stimulation it tends to be shortened and curled up on one side. An example of the papillar arrangement after EDMUNDS, 1970, is shown thus: 2, 3, 5, 6, 5; 5, 5, 4, 4, 3, 2, 1, 1 on the right side, and 3, 4, 5, 6, 6; 6, 5, 4, 4, 3, 2, 2, 1, 1 on the left. The anus is interhepatic; the nephroproct lies in front of the anus; the genital orifices are found immediatcly below the second row on the right side.

Coloration: The distribution of complicated colour markings on the body of this species appears to be especially distinctive in the genus. The general ground-colour of the integument is yellowish white. On the back and sides there occur rounded or oval spots of vivid yellow. These appear to vary considerably in size and number according to different specimens. Furthermore, there are patches of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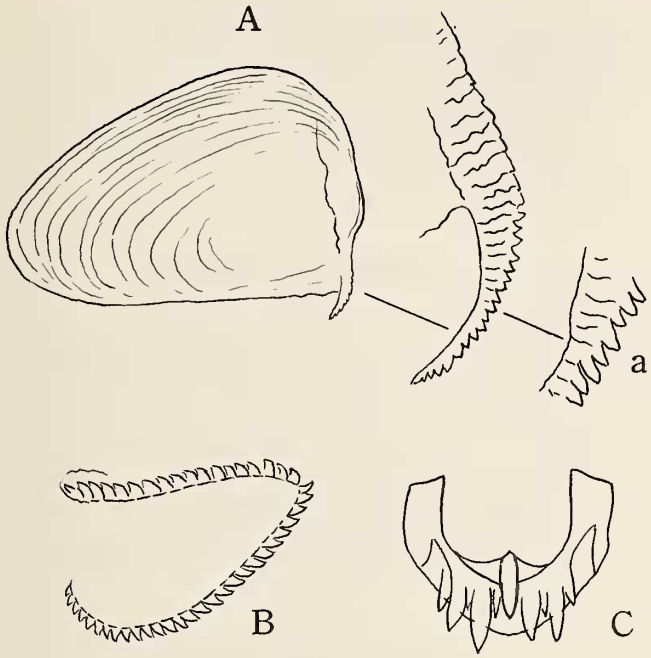

Figure 2

Trinchesia diversicolor Baba, spec. nov.

A: Right jaw plate (× 30) B: Radular ribbon (× 30)
C: Tooth (× 400) a – denticulations of jaw edge

bluish white (more exactly, opaque white with a bluish lustre) irregularly scattered among the yellow ones. The head above is always covered with a large bluish white patch which is quadrangular in outline and traversed in the middle by a narrow band of yellow. Also there exists a rhomboid patch of bluish white immediately behind the rhinophores. In some specimens this latter patch is found to extend down the mid-dorsal line discontinuously. The oral tentacles and rhinophores are orange yellow above, which colour is heavier towards the tip, and spotted with yellow on their lower half.

The outer (= upper) surface of the branchial papillae is minutely spotted with yellow. Towards the tip each papilla assumes an orange yellow band followed by a bluish white one. The inner (= lower) surface of these papillae appears colourless. The liver diverticulum within the papillae is usually dark green, somewhat as in some other species of *Trinchesia*. But in this new species the liver diverticulum is rather closely studded with minute black spots which are mostly formed by the collection of dark brown cells and lie among the diverticular epithelium.

Internal anatomy: The jaws and radula show the typical characteristics of *Trinchesia*. That is, the denticles of the jaw edge are arranged in a single row, and the radular teeth have each a retracted median cusp. In the specimens dissected, the denticles of the jaw edge number 20

(← on facing page)

Figure 1

Trinchesia diversicolor Baba, spec. nov.
from Akasumi, Noto, Japan

A: Living animal from dorsal side, length (Ac) 13 mm
B: Digestive system; salivary glands not shown
a – nephroproct b – anus
c – isolated liver cell filled with dark brown granules
d – orange yellow band e – bluish white band
f – minute yellow spot g – bluish white patch h – yellow spot
i – yellow band j – genital orifices k – right liver
l – left posterior liver m – "special cells" n – cnidosac
o – liver diverticulum p – oral gland q – left anterior liver
r – stomach

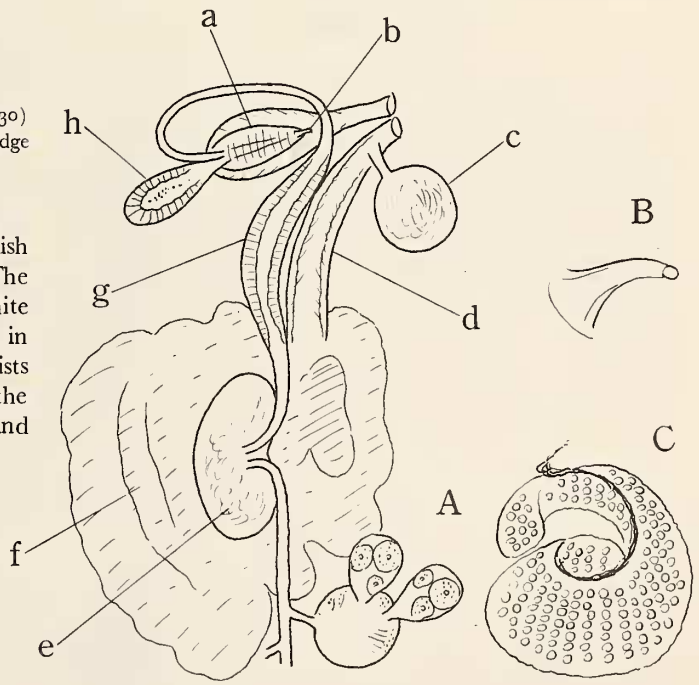

Figure 3

Trinchesia diversicolor Baba, spec. nov.

A: Genital system from dorsal side (× 40)
B: Penial stylet (× 250) C: Spawn (× 10)
a – penis b – stylet c – spermatocyst d – outer oviduct
e – ampulla f – accessory female gland mass
g – prostatic part of vas deferens h – penial gland

to 28. They are simple, not split. The radular formula is 70 - 80 × 0 · 1 · 0. There are 3 (- 4) produced lateral denticles which are often accompanied with some accessory ones similar to those known from the teeth of *Catriona*. A pre-radula is missing.

As mentioned before, there are usually 5 simple branches in the right liver of the adult. The liver diverticulum within the papillae is seen to consist of 3 types of cells. The most abundant are the greenish cells (cells with greenish granules) which are, however, intermingled with colourless ones (cells with colourless granules). The third are dark brown cells (cells with dark brown granules) which tend to collect together to form minute black spots along the length of the diverticulum.

The structure of the genital system is as it is generally known in the genus (cf. Edmunds, 1970; Schmekel, 1970). The penis is muscular and conical with a short stylet in the larger specimens as well as in the smaller. Also it is accompanied by a penial gland (cf. Burn, 1973). Part of the vas deferens forms a prostate.

SUMMARY

1. The present new species constitutes one of the typically organized members of the genus *Trinchesia* von Ihering, 1879 in the arrangement of the branchial papillae which is combined with the development of the liver branches, and in a series of internal features, such as the simplified denticulation of the jaw-edge, the retracted median cusp of the radular teeth, and the formation of a penial stylet and a penial gland on the male part of the genitalia.

2. This new species is distinct from the previously known members of the genus in having an exceedingly complicated coloration of the body displayed principally by the distribution of yellow markings and bluish white ones on the back and sides. The branchial papillae are minutely spotted with yellow on the outer surface, and there is a double band of orange yellow and bluish white near the tip. The liver diverticulum within the papillae is dark green spotted with black.

ACKNOWLEDGMENTS

The author wishes to offer his cordial thanks to Mr. Takeo Abe of the Takaoka Senior High School for giving him opportunities to study specimens of *Trinchesia* collected by his School's Biological Club during the years past from various stations of the west coast of Middle Japan including Toyama Bay and its vicinity. The author is also indebted to Dr. Itaru Usuki of the Niigata University for the information concerning the specimen of *Trinchesia* from Sado, Japan Sea.

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